



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,516	10/04/2000	Hyoung Gon Kim	REF/KIM/174	1338

7590

11/03/2003

Bacon & Thomas

4th Floor

625 Slaters Lane

Alexandria, VA 22314-1176

EXAMINER

CARTER, AARON W

ART UNIT

PAPER NUMBER

2625

DATE MAILED: 11/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/623,516

Applicant(s)

KIM ET AL.

Examiner

Aaron W Carter

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-13 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,125,198 to Onda.

3. As to claim 1, Onda discloses a method of determining a stereo disparity between a reference image and a search image for a reference pixel in the reference image (Abstract, lines 15-22 and Fig. 7), said method comprising the steps of:

(a) calculating a similarity measure between a reference window including a set of pixels centering on the reference pixel and each of a group of search windows in the search image which is of a same shape with the reference window and displaced from the reference window within a predetermined search range (column 6, lines 39-49), wherein a matching pixel count, which is the number of pixels in the reference window which are similar in intensity to corresponding pixels in a search window, is used as the similarity measure between the reference window and said search window (column 7, lines 26-39, wherein the matching pixel count corresponds to Σ_{all} and wherein P and Z are values determined based on pixel intensity); and

Art Unit: 2625

(b) determining a displacement between the reference window and a search window which yields a largest similarity measure as the stereo disparity for the reference pixel (column 7, lines 39-45).

Allowable Subject Matter

4. Claims 3-13 are allowed.

5. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is an examiner's statement of reasons for allowance: With respect to claim 3, none of the prior art, teach or fairly suggest, calculating the measure of similarity in steps that includes calculating $P(x,y,d)$ values as follow:

$$P(x,y,d) = 1, \text{ if } \text{abs}(B_R(x,y) - B_L(x+d,y)) \leq Th$$
$$= 0, \text{ otherwise,}$$

where $B_R(x,y)$ and $B_L(x+d,y)$ represent intensity values of $R(x,y)$ and $L(x+d,y)$ and Th is a predetermined threshold; and determining $MPC(x,y,d)$ values for $d=0$ to Sr (Sr is a predetermined number) as follows:

$$MPC(x,y,d) = \text{Sigma}(w) (P(x,y,d))$$

Art Unit: 2625

Wherein w represent the reference window and the search window centering on $L(x+d, y)$.

Although, Onda discloses a similar method of computing the similarity measure, he does not teach or fairly suggest finding the measure using the same calculation mentioned above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPN 5,734,743 to Matsugu et al. discloses the use of reference and search windows in determining the disparity between a stereo image pair.

USPN 6,141,440 to Melen discloses the use of reference and search windows in determining the disparity between a stereo image pair.

USPN 6,606,406 to Zhang et al. discloses the use of reference and search windows in determining the disparity between a stereo image pair.

USPN 4,825,393 to Nishiya discloses the use of reference and search windows in determining the disparity between a stereo image pair.

USPN 6,215,899 to Morimura et al. discloses the use of reference and search windows in determining the disparity between a stereo image pair.

USPN 4,745,562 to Prazdny discloses the use of reference and search windows in determining the disparity between a stereo image pair.

Art Unit: 2625

USPN 6,314, 211 to Kim et al. discloses the use of reference and search windows in determining the disparity between a stereo image pair, however the effective date is later than the effective date of this application.

US Publication 2002/0012459 to Oh discloses the use of reference and search windows in determining the disparity between a stereo image pair, however the effective date is later than the effective date of this application.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron W. Carter whose telephone number is 703.306.4060. The examiner can normally be reached by telephone between 8am - 4:30pm (Mon. – Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 703.308.5246. The fax phone number for the organization where the application or proceeding is assigned is 703.872.9306 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.306.0377.

Aaron W. Carter
Examiner
Art Unit 2625

Awc
awc

October 30, 2003



Jayanti K. Patel
Primary Examiner